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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I

5 POST OFFICE SQUARE, SUITE 100  
BOSTON, MASSACHUSETTS 02109-3912

**CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

APR 15 2010

Mr. Steven C. Nasan  
Director, Residential Real Estate  
Harvard Real Estate Services  
Holyoke Center  
1350 Massachusetts Avenue  
Cambridge, Massachusetts 02138

Re: Risk-Based PCB Cleanup and Disposal Approval under  
40 CFR § 761.61(c) and § 761.79(h)  
Peabody Terrace Housing Complex  
Cambridge, Massachusetts  
Mass DEP RTN: 3-28873

Dear Mr. Nason:

This is in response to the President and Fellows of Harvard College (Harvard) Notification<sup>1</sup> for approval of a proposed PCB cleanup at the Peabody Terrace Housing Complex (Peabody Complex) located at 900 Memorial Drive, Cambridge, Massachusetts (the Site). Buildings in the Peabody Complex contain PCB caulk that exceeds the allowable PCB levels under the federal PCB regulations at 40 CFR § 761.20 and § 761.62. PCBs concentrations have also been identified in building concrete and in adjacent soils which exceed the allowable PCB levels for unrestricted use under 40 CFR § 761.61(a).

Harvard has requested an approval to address PCB contamination at the Site under 40 CFR § 761.61(c). Harvard is proposing the following activities under this project:

- Removal and off-site disposal of all exterior PCB caulk;
- Encapsulation of exterior concrete in direct contact with PCB caulk with 2 coats of an epoxy coating and installation of new caulk;
- Encapsulation of exterior concrete surfaces not in direct contact with PCB caulk, including exterior walls and balcony/patio vertical surfaces, and concrete patios with 2 coats of an acrylic coating;

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<sup>1</sup> The plan was prepared by Woodard & Curran on your behalf to satisfy the requirements under 40 CFR §§ 761.61(c), 761.62, and 761.79(h). Information was received dated February 16, 2010; April 6, 2010; and, April 9, 2010 (via e-mail) and shall be referred to as the "Notification."

- Encapsulation of balcony horizontal concrete surfaces not in direct contact with PCB caulk with a coating system designed for weatherproofing;
- Decontamination of metal window and door frames in direct contact with PCB caulk to less than or equal to ( $\leq$ ) 10  $\mu\text{g}/100 \text{ cm}^2$ ;
- Removal and off-site disposal of interior PCB caulk located around windows and doors and installation of new caulk overlaid with a metal trim or flexible strip;
- Removal and disposal of PCB-contaminated soils with greater than ( $>$ ) 1 ppm;
- Implementation of long term maintenance and monitoring of the encapsulated areas; and,
- Recording of a deed notice to document the PCB concentrations at the Site and the long-term maintenance and monitoring requirements.

As indicated in the Notification, Harvard is proposing to conduct the proposed cleanup and disposal activities initially on Buildings A, B, C, and X. The results of the work will be used to evaluate the proposed activities and to refine the approach for the remaining PCB-impacted buildings.

Based on the EPA's review, the information provided in the Notification meets the requirements under 40 CFR § 761.61, § 761.62, and § 761.79(h) for cleanup and disposal of PCB wastes. EPA finds that the proposed encapsulation of PCB-contaminated concrete with a coating (or a solid barrier for interior windows and doors) should effectively prevent direct exposure of these PCB surfaces to building users and building occupants. As such, EPA may approve this cleanup and disposal under § 761.61(c).

Harvard may proceed with its project in accordance with 40 CFR § 761.61(c); § 761.62; § 761.79(h); its Notification; and this Approval, subject to the conditions of Attachment 1.

In order to evaluate the effectiveness of the encapsulation and the initial abatement work, EPA is requiring Harvard to submit the results of this abatement work, including post-encapsulation sampling, for EPA review before undertaking PCB cleanup activities at the remaining buildings (see Attachment 1, Condition 1). As part of this submission, Harvard should include any changes and/or modifications which were made or identified during implementation of this initial abatement work. Based on this review, EPA will determine: if any additional post-encapsulation sampling on Buildings A, B, C, or X is necessary to confirm the effectiveness of the encapsulation; whether additional abatement measures, if any, are necessary; and, what information is required before abatement of the remaining buildings.

Under this Approval, EPA is reserving its right to require additional investigation or mitigation measures should the results of the initial abatement work in Building A, B, D, and/or X indicate that an unreasonable risk to building occupants and/or building users remains following the abatement activities.

This Approval does not provide for cleanup and disposal of PCB-contaminated soils since additional sampling is necessary to define the nature and extent of the contamination. Upon completion of the investigation of soils at the Site, Harvard may request a modification to this Approval to incorporate cleanup of PCB-contaminated soils or Harvard may submit a separate cleanup and disposal notification under 40 CFR § 761.61 (see Attachment 1, Condition 1).

Questions and correspondence on this Approval should be directed to:

Kimberly N. Tisa, PCB Coordinator  
United States Environmental Protection Agency  
5 Post Office Square, Suite 100 (OSRR07-2)  
Boston, Massachusetts 02109-3912  
Telephone: (617) 918-1527  
Facsimile: (617) 918-0527

EPA shall not consider this project complete until it has received all submittals required under this Approval. Please be aware that upon EPA receipt and review of the submittals, EPA may request any additional information necessary to establish that the work has been completed in accordance with 40 CFR Part 761, the Notification, and this Approval.

Sincerely,



James T. Owens, Director  
Office of Site Remediation & Restoration

cc: J. Hamel, Woodard & Curran  
M. Milette, EPA  
Mass DEP RTN: 3-28873  
File

Attachment 1

**ATTACHMENT 1:       PCB RISK-BASED APPROVAL CONDITIONS  
                              PEABODY TERRACE HOUSING COMPLEX  
                              900 MEMORIAL DRIVE  
                              CAMBRIDGE, MASSACHUSETTS**

**GENERAL CONDITIONS**

1. This Approval is granted under the authority of Section 6(e) of the Toxic Substances Control Act (TSCA), 15 U.S.C. § 2605(e), and the PCB regulations at 40 CFR Part 761, and applies solely to the *PCB bulk product waste* and the *PCB remediation waste* located in the Peabody Terrace Housing Complex (the Site), specifically Buildings A, B, and C (low-rise buildings) and Building X (high-rise building).
  - a. This Approval does not address PCB cleanup at the remaining buildings on the Site, specifically Buildings D, E, F, Y, and Z. Following submittal of the Report required under Condition 21, Harvard may request a modification to this Approval to incorporate cleanup of these remaining building under this Approval (see Condition 17). In the alternative, a separate cleanup plan may be submitted in accordance with 40 CFR § 761.61.
  - b. This Approval does not address the cleanup of PCB-contaminated soils as the nature and extent of the contamination has not been defined. Upon completion of the investigation, Harvard may request a modification to this Approval to incorporate cleanup of the soils under this Approval (see Condition 17) or Harvard may submit a separate cleanup plan in accordance with 40 CFR § 761.61.
2. The President and Fellows of Harvard College (Harvard) shall conduct on-site activities in accordance with the conditions of this Approval and with the Notification.
3. In the event that the cleanup plan described in the Notification differs from the conditions specified in this Approval, the conditions of this Approval shall govern.
4. The terms and abbreviations used herein shall have the meanings as defined in 40 CFR § 761.3 unless otherwise defined within this Approval.
5. Harvard must comply with all applicable federal, state and local regulations in the storage, handling, and disposal of all PCB wastes, including PCBs, PCB Items and decontamination wastes generated under this Approval. In the event of a new spill during implementation of these cleanup activities, Harvard shall contact EPA within 24 hours for direction on PCB cleanup and sampling requirements.

6. Harvard is responsible for the actions of all officers, employees, agents, contractors, subcontractors, and others who are involved in activities conducted under this Approval. If at any time Harvard has or receives information indicating that Harvard or any other person has failed, or may have failed, to comply with any provision of this Approval, it must report the information to EPA in writing within 24 hours of having or receiving the information.
7. This Approval does not constitute a determination by EPA that the transporters or disposal facilities selected by Harvard are authorized to conduct the activities set forth in the Notification. Harvard is responsible for ensuring that its selected transporters and disposal facilities are authorized to conduct these activities in accordance with all applicable federal, state and local statutes and regulations.
8. This Approval does not: 1) waive or compromise EPA's enforcement and regulatory authority; 2) release Harvard from compliance with any applicable requirements of federal, state or local law; or 3) release Harvard from liability for, or otherwise resolve, any violations of federal, state or local law.

#### **NOTIFICATION AND CERTIFICATION CONDITIONS**

9. This Approval may be revoked if the EPA does not receive written notification from Harvard of its acceptance of the conditions of this Approval within 10 business days of receipt.
10. Harvard shall notify EPA in writing of the scheduled date of commencement of on-site activities at least 1 business day prior to conducting any work under this Approval.
11. Prior to initiating onsite work under this Approval, Harvard shall submit the following information for EPA review and/or approval:
  - a. a certification signed by its selected abatement contractor, stating that the contractor(s) has read and understands the Notification, and agrees to abide by the conditions specified in this Approval;
  - b. a certification signed by the selected analytical laboratory, stating that the laboratory has read and understands the sample extraction and analysis requirements, and the quality assurance requirements specified in the Notification and in this Approval; and,
  - c. A contractor work plan, prepared and submitted by the selected contractor(s), detailing the procedures that will be employed for removal of PCB-contaminated materials and for containment and air monitoring during removal activities. This work plan should also include information on waste storage, handling, and disposal for each waste stream type and for equipment decontamination.

## CLEANUP AND DISPOSAL CONDITIONS

12. To the maximum extent practical, engineering controls, such as barriers, and removal techniques, such as the use of HEPA ventilated tools, shall be utilized during removal processes. In addition, to the maximum extent possible, disposable equipment and materials, including PPE, will be used to reduce the amount of decontamination necessary.
13. PCB-contaminated materials shall be removed and/or decontaminated, and verification sampling and analysis shall be conducted as described below:
  - a. All visible caulk shall be removed and PCB-contaminated *porous surfaces* (e.g. concrete) shall be encapsulated as described in the Notification.
  - b. The decontamination standard for *non-porous surfaces* (i.e. metal frames) shall be less than or equal to ( $\leq$ )  $10 \mu\text{g}/100 \text{ cm}^2$  PCBs.
    - i) Sampling of *non-porous surfaces* shall be performed on a surface area basis by the standard wipe test as specified in 40 CFR § 761.123 (i.e.  $\mu\text{g}/100 \text{ cm}^2$ ).
      - (1) For the initial cleanup/decontamination activities, the minimum confirmatory sampling frequency for decontaminated metal frames shall be 1 sample from each of the first 10 locations.
      - (2) Chemical extraction for PCBs shall be conducted using Method 3500B/3540C of SW-846 and chemical analysis for PCBs shall be conducted using Method 8082 of SW-846, unless another method(s) is validated according to Subpart Q.
      - (3) If all PCB sampling results from the first 10 locations are  $\leq 10 \mu\text{g}/100 \text{ cm}^2$ , Harvard may use the following alternative verification sampling scheme for the remainder of the project. The alternative scheme requires, at a minimum, the collection of at least 1 verification sample per every 10 decontaminated metal frames. In the event **any** verification sample exceeds the PCB cleanup standard, Harvard shall contact EPA for a determination on the appropriate verification sampling frequency for the remaining metal surfaces. Alternatively, Harvard shall continue to use the initial confirmatory sampling frequency for the remainder of this project.

- c. Following encapsulation of PCB-contaminated surfaces, post-abatement sampling shall be conducted to determine the impact of the cleanup and disposal activities:
- i) *Exterior Surfaces*
    - (1) Wipe sampling of exterior surfaces shall be performed on a surface area basis by the standard wipe test as specified in 40 CFR § 761.123 (i.e.  $\mu\text{g}/100\text{ cm}^2$ ) and at the frequency detailed in the Notification. Chemical extraction for PCBs shall be conducted using Method 3500B/3540C of SW-846 and chemical analysis for PCBs shall be conducted using Method 8082 of SW-846, unless another method(s) is validated according to Subpart Q.
  - ii) *Interior Surfaces*
    - (1) Within 30 days of receipt of this Approval, Harvard shall submit its proposed plan for post-caulk abatement indoor surface sampling and indoor air sampling for EPA review and approval. The plan should include both surface wipe sampling and indoor air sampling at each building addressed under this Approval, specifically Buildings A, B, C and X.
      - (a) Wipe sampling of indoor surfaces shall be performed on a surface area basis by the standard wipe test as specified in 40 CFR § 761.123 (i.e.  $\mu\text{g}/100\text{ cm}^2$ ). Chemical extraction for PCBs shall be conducted using Method 3500B/3540C of SW-846 and chemical analysis for PCBs shall be conducted using Method 8082 of SW-846, unless another method(s) is validated according to Subpart Q. The laboratory reporting limit shall be  $\leq 1\text{ }\mu\text{g}/100\text{ cm}^2$ .
      - (b) Indoor air sampling shall be conducted in accordance with EPA Method TO-10A or EPA Method TO-4A. Sufficient sample volumes shall be collected to provide a laboratory reporting limit of  $\leq 0.050\text{ }\mu\text{g}/\text{m}^3$ . PCB analysis shall be conducted for PCB homologues and/or PCB congeners by EPA Method 680 or EPA Method 1668.
    - (2) In the event that PCB concentrations in the wipe samples are greater than ( $>$ )  $1\text{ }\mu\text{g}/100\text{ cm}^2$  or air sample results are  $> 0.050\text{ }\mu\text{g}/\text{m}^3$ , Harvard shall contact EPA for further discussion and direction on alternatives.

- d. Harvard shall submit a monitoring and maintenance implementation plan (MMIP) to monitor the long-term effectiveness of the encapsulants and other barriers in reducing exposure to building users (see Condition 15).
14. PCB waste (at any concentration) generated as a result of the activities described in the Notification, excluding any decontaminated materials, shall be marked in accordance with 40 CFR § 761.40; stored in a manner consistent with 40 CFR § 761.65; and, disposed of in accordance with 40 CFR § 761.61 or § 761.62, unless otherwise specified below.
- a. Non-liquid cleaning materials, PPE and similar materials resulting from decontamination may be disposed of in accordance with 40 CFR § 761.79(g)(6).
  - b. Moveable equipment, tools, and sampling equipment shall be decontaminated in accordance with either 40 CFR § 761.79(b)(3)(i)(A), § 761.79(b)(3)(ii)(A), or § 761.79(c)(2).
  - c. PCB-contaminated water generated during decontamination or dewatering shall be decontaminated in accordance with 40 CFR § 761.79(b)(1) or disposed of under § 761.60.

#### **INSPECTION, MONITORING, MODIFICATION AND REVOCATION CONDITIONS**

15. Within 120 days of completion of the work authorized under this Approval, Harvard shall submit for EPA's review and approval, a detailed MMIP for the surface coating(s) and for indoor air. Harvard shall incorporate any changes to the MMIP required by EPA.
- a. The MMIP shall include: a description of the activities that will be conducted, including inspection criteria, frequency, and routine maintenance activities; sampling protocols, sampling frequency, and analytical criteria; and reporting requirements.
  - b. The MMIP shall include a communications component which details how the maintenance and monitoring results will be communicated to the Site users, including residents, other on-site workers, and interested stakeholders.
  - c. The MMIP also shall include a worker training component for maintenance workers or for any person that will be conducting work that could impact the building coatings.

- d. Harvard shall submit the results of these long-term monitoring and maintenance activities to EPA. Based on its review of the results, EPA may determine that modification to the MMIP is necessary in order to monitor and/or evaluate the long-term effectiveness of the coatings.
  - e. Activities required under the MMIP shall be conducted until such time that EPA determines, in writing, that such activities are no longer necessary.
16. Harvard shall allow any authorized representative of the Administrator of the EPA to inspect the Site and to inspect records and take samples as may be necessary to determine compliance with the PCB regulations and this Approval. Any refusal by Harvard to allow such an inspection (as authorized by Section 11 of TSCA) shall be grounds for revocation of this Approval.
17. Any proposed modification(s) in the plan, specifications, or information in the Notification must be submitted to EPA for review and approval. Any proposed modification(s) in the plan or specifications contained in the Notification or any departure from the conditions of this Approval without prior, written authorization from the EPA may result in the revocation, suspension and/or modification of the Approval, in addition to any other legal or equitable relief or remedy the EPA may choose to pursue.
18. Any misrepresentation or omission of any material fact in the Notification or in any records or reports may result in the EPA's revocation, suspension and/or modification of the Approval, in addition to any other legal or equitable relief or remedy the EPA may choose to pursue.

#### **RECORDKEEPING AND REPORTING CONDITIONS**

19. Harvard shall prepare and maintain all records and documents required by 40 CFR Part 761, including but not limited to the records required under Subparts J and K. A written record of the decontamination and the analytical sampling shall be established and maintained by Harvard in one centralized location, until such time as EPA approves in writing a request for an alternative disposition of such records. All records shall be made available for inspection to authorized representatives of EPA.
20. As required under Condition 15 of this Approval, Harvard shall submit the results of the long-term monitoring and maintenance activities to EPA as specified in the final MMIP to be approved by EPA.

21. Harvard shall submit a Final Completion Report (Report) to the EPA within 120 days of completion of the activities described under this Approval. At a minimum, this Report shall include: a discussion of the project activities, including any modifications that were made to the cleanup plan; characterization and post-abatement sampling analytical results; copies of the accompanying analytical chains of custody; field and laboratory quality control/quality assurance checks; an estimate of the quantity of PCBs removed and disposed off-site; copies of manifests and/or bills of lading; and, copies of certificates of disposal or similar certifications issued by the disposer, if applicable. The Report shall also include a copy of the recorded deed restriction and a certification signed by a Harvard official verifying that the authorized activities have been implemented in accordance with this Approval and the Notification.
22. Required submittals shall be mailed to:
- Kimberly N. Tisa, PCB Coordinator  
United States Environmental Protection Agency  
5 Post Office Square, Suite 100 (OSRR07-2)  
Boston, Massachusetts 02109-3912  
Telephone: (617) 918-1527  
Facsimile: (617) 918-0527
23. No record, report or communication required under this Approval shall qualify as a self-audit or voluntary disclosure under EPA audit, self-disclosure or penalty policies.

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**END OF ATTACHMENT 1**